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10/525,767

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Franz-Josef Dietzen

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WASHINGTON, DC 20006

EXAMINER

ZEMEL, IRINA SOPHIA

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/30/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/525,767 | Applicant(s) DIETZEN ET AL. | |
| | Examiner Irina S. Zemel | Art Unit 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,8-10 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6,8-10 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3,6, 8-10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patents 4,990,542 and 5,317,033 (of record) both to Monani, et al., (hereinafter "Motani '542" and Motani "'033") in combination with either US Patent 4,818,451 to Arai et al., (hereinafter "Arai"), or US Patent 4,912,140 to Tusim, (hereinafter "Tusim"), and further in combination with EP 0915127 to BASf or WO 98/ 51735 to BASf both of record, (hereinafter "BASF EP" and "BASF WO") and further in view of US Patent 4,585,825 to Wesselmann, (hereinafter "Wesselmann").

The rejection stands as per reasons. Insofar as the newly added limitation of the claim language "consisting of" for the process steps. blowing agents and polymers the process of Motani (as modified by secondary references) did not contain any additional steps as discussed in the previous office action, thus still meeting all of the claimed limitations.

Response to Arguments

Applicant's arguments filed 8-13-2009 have been fully considered but they are not found persuasive. The applicants state that the claims are amended to recite that the thermoplastic polymer consists of a polymer with a molar mass Mw in the range from 150,000 to 250,000 g/mol and a polymer with a molar mass in the range from 280,000 to 500,000 g/mol. It is noted that these limitations were

Art Unit: 1796

introduced in the previous amendment dated 3-2-2009, and have been previously considered in rejection dated 4-30-2009.

The applicants main argument is that the molecular weight feature is not disclosed in any of the Motani '033, Motani '542, Arai, Tusim, Glick '127, or Glick '735 references, and the only reference it taught is the Wesselmann reference, but unlike all other references, Wesselmann is not concerned with foamed materials, but rather discloses molded articles.. The applicants state that density, mechanical properties and other properties are drastically different for foamed articles and molded articles. Then the applicants ask a question of how one of ordinary skill in the art would not be able to predict how a blowing agent affects the cell structure of bi-modal polystyrene since Wesselmann is not even concerned with foams? While the examiner agrees that the most of the properties for foamed a molded articles are different, the question asked by the applicant is somewhat misplaced. The actual question is not how the blowing agent affects the cell structure of bi-modal polystyrene, rather it how the properties of the underlying polymeric material will affect the properties of the foams based on this material.

The applicants state that they "respectfully disagree with the assertion in the Office Action at page 3, lines 4-7, that "improvements that are achieved by using bi-modal polystyrene in mechanical properties, such as improved heat resistance, are reasonably expected to be realized in any process that uses such polystyrene and in any final product based on bi-modal polystyrene." At the onset, the argumentation is based on the assumption that the citations may

Art Unit: 1796

be combined. However, a product based on a bi-modal polystyrene, has, of course, properties that depend on the bi-modal polystyrene. Nevertheless, the issue is whether a skilled artisan would have had a reasonable expectation of success that using the bi-modal polystyrene of Wesselmann in the process of Motani '033 or Motani '542, as modified by Arai, Tusim, Glick '127, and Glick '735 would improve the product of the hypothetical product obtained by the combination of Motani '033, Motani '542, Arai, Tusim, Glick '127, and Glick '735. There is no reasonable expectation of success."

The examiner, on the other hand, respectfully disagrees with applicants' opinion. As pointed out by the applicants, "a product based on a bi-modal polystyrene, has, of course, properties that depend on the bi-modal polystyrene." In other words, and as extremely known in the art, the final properties of the foams are governed by the properties of the underlying or original polymer. (and processing conditions). The first step of an ordinary artisan in manufacturing a foam with given properties is to choose right underlying polymers. As discussed above, the properties of the foams are governed by the properties of the polymer. For example, speaking of thermal stability property, foams based on a regular polystyrene (PS) exhibit low thermal stability, and this is because polystyrene has low heat deflection temperature (low thermal stability). When foams of higher thermal stability are desired, polymers, such as styrene-maleic anhydride copolymers are used, and it is because the materials, i.e., styrene-maleic anhydride copolymers have heat deflection temperature higher than those of polystyrene.

Art Unit: 1796

It is therefore, and contrary to the applicants believed and allegation, filly and reasonable expected that using similar starting polymer, but with higher thermal stability properties as compared to regular PS, will result in foams with higher thermal stability. Similarly, since the bi-modal PS exhibits improved tensile strength, the foams based on such polymer is also reasonably expected to exhibit improved tensile strength (although it is will understood that the actual improvement may be of different magnitude as compared to molded articles). It is also noted that bi-modal PS of Wesselmann exhibit improved melt flow characteristics - a property of huge importance for extrusion foaming process.

The applicants further argue that since EPS and XPS foam production processes are so different, one of ordinary skill in the art would not be able to predict how how a change in blowing agent in one process will affect the properties of the product produce via another process.

The examiner respectfully disagrees. It is not that the processes are different, it is that the differences are extremely well known and well studied in the art, that would allow an ordinary artisan to make a reasonable prediction in how blowing agent used in one process can be used and with what effect in the other process. And while the processes may be different is some parameters, the foaming mechanism is still the same and is based on the properties of the foaming agent (i.e., its thermal expansion/decomposition, and the dynamics of such expansion/decomposition process). While the blowing agent expansion is T,t and P dependent, those parameters, as pointed out by the applicants, are well known in advance in each of respective process, and can be controlled to

Art Unit: 1796

achieve successful foaming in one process based on the knowledge of the blowing agent behavior in the other process. Thus, it is not the process differences, by the knowledge of how the processes are different, along with knowledge of mechanism of blowing agent expansion that will allow for successful use of the blowing agent of one process in the other process with predictable results and/or differences.

The invention as claimed, thus, is still considered to have been fully obvious from the combined disclosure of the cited references.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

Art Unit: 1796

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/
Primary Examiner, Art Unit 1796

Irina S. Zemel
Primary Examiner
Art Unit 1796

ISZ